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MANUFACTURE OF LITHIUM SECONDARY BATTERY POSITIVE ELECTRODE

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ABSTRACT

PURPOSE: To manufacture a lithium secondary battery positive electrode with high film-adhesion property and excellent characteristic of battery by forming a metal oxide film containing lithium on an electrode substrate by jointly using vapor deposition of a lithium containing material and ion beam irradiation.

CONSTITUTION: A lithium-containing material is vaporized from a vaporizing source 3 inside a vacuum chamber 1 having an exhaust device 7, and a vaporized material 3a is vapor-deposited on an electrode substrate S mounted on a base holder 2. At the same time, ion beams are irradiated on the substrate S from an ion source 4. A lithium-containing metal oxide film is formed on the substrate S. As the lithium-containing metal oxide, $\text{LiMn}(\text{sub } 2)\text{O}(\text{sub } 4)$, $\text{LiWO}(\text{sub } 3)$, $\text{LiCoO}(\text{sub } 2)$, LiNiCoO , and $\text{LiV}(\text{sub } 2)\text{O}(\text{sub } 5)$ are used. This ion beam is preferably formed by using an inert gas or an oxygen gas as a raw gas, and an accelerating energy of 100eV-500KeV. By using the lithium-containing metal oxide film as the positive electrode of a lithium secondary battery, the mobility of a lithium ion on the inside hardly drops and desirable battery characteristics is easily obtained.